The exposure to environmental and lifestyle-related factors during critical periods of development can contribute to long-term consequences in offspring's health; however the results of existing studies are still not fully conclusive.

The research aim of the project is to evaluate the impact of environmental and lifestyle-related factors during prenatal period and after birth on health and neurobehavioural outcomes in adolescents from the Polish Mother and Child Cohort (REPRO_PL).

The current project is an extension of REPRO_PL cohort – longitudinal study that was established in 2007 in Poland. The following Phases of REPRO_PL: I (pregnancy period), II (assessments at 1/2 years of age) and III (assessments at 7 years of age) have been already performed. In order to achieve the objectives stated within this project we will use the data already collected and analyzed within the REPRO_PL (Phases I-III) and, we will perform exposure, health status and neurobehavioural assessment in 400 adolescents at the age of 14 (Phase IV of the cohort).

The exposure assessment will be done based on questionnaires, biomonitoring (in blood and urine collected from adolescents) and personal monitoring. The following chemicals will be assessed: phthalates, bisphenols (BPA, BPS, BPF), cotinine, air pollutants (PM10, PM2.5, PAH metabolites), metals (Pb, Cd, Hg, As), diet, physical activity and use of new technology. The health status assessment will cover: clinical examination by pediatrician/allergist; skin prick and pulmonary functions tests; two blood pressure checking; anthropometric measurements; posture faulty, persistent reflexes, balance and gait parameters by physiotherapist. The blood sample will be collected and analyzed (FT3, FT4, TSH, glucose and insulin, cholesterol, LDL, HDL and TG). The intelligence and psychomotor abilities of the adolescents will be assessed by the Intelligence and Development Scales (IDS-2) (the examination will be performed by a certified psychologist) whereas behavioral profile by Strengths and Difficulties Questionnaire (SDQ). Adolescent sleep quality will be evaluated by Sleep Disturbance Scale for Children. Taking into account organizational feasibility, the adolescents from Lodz region will be equipped with personal aspirators (for 24H PM_{10} and $PM_{2.5}$ monitoring) and smartwatches (for 7-days physical activity measurements).

The analysis of the data, interpretation of the results and manuscript preparation will be performed by experienced team of researchers and with involvement of scientists from other European mother and child cohorts. The project will generate the results that are crucial from scientific, public health and clinical perspective.